NOTES ON CALIFORNIA COCCIDÆ V

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VENTURA COUNTY

Fiorinia fioriniæ var. japonica Kuw

FEMALE SCALE (Fig. 82)—Is a golden brown with a decided ridge running down the middle of the dorsum. In shape it is long and narrow, being 2 mm. long and ½ mm. wide. The scale outline containing the body proper is shown in Figures 82, C. and D. The body is very much smaller than the outside scale; oval to oblong in shape.

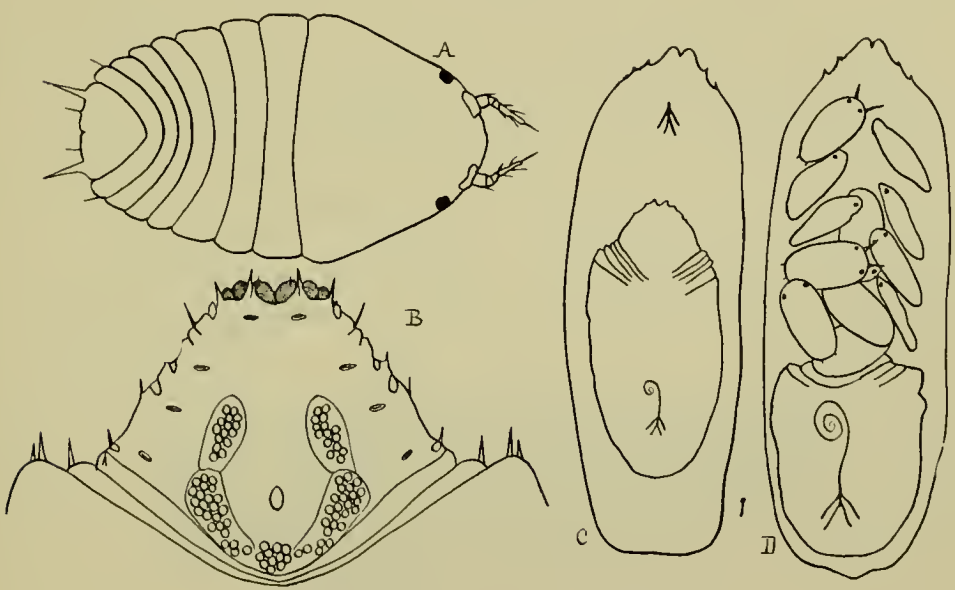

Figure 82. Fiorinia fioriniae var. japonica.

Pygidium (Fig. 82 B.)—The mesal lobes rather small and rounding, with a small hair or spine on each. A large spine separates each lobe from the second pair. The second lobe is divided to form two rather distinct lobes. There is a faint trace of a third divided lobe, but this is very obscure. A large spine separates the second from the supposed third. Four other spines appear on the margin to the first segment, and other spines follow as shown in the figure. There are few tubular spinnerets, in many forms not any showing. Usually there are four or five on each side of the pygidium. The circumgenital glands are all run together in most specimens and it is hard to draw a distinction between the lateral and median group. The approximate

numbers are as follows: lower laterals—14 to 16; upper laterals—21 to 27; median—9 to 12.

According to the mounted specimen shown in Figure 82, D., it would appear that the young were born alive and crawl from beneath the shell as in the case of the ovoviviparous forms. The young body (Fig. 82A) resembles the young of most scale. The whole thorax is apparently undivided while the abdomen is markedly segmented. The antennæ are rather short and stout with the normal number of spines. The pygidium has two very distinct and stout spines—one on either anal lobe, with several smaller spines also. The eyes are black.

Food plants—*Podocarpus chinensis*, Pinus.

Habitat—A native of Japan, but shipped into this state on nursery stock; the described species was collected at Bakersfield and sent to this office by Mr. Edw. M. Ehrhorn when he was Quarantine Commissioner at San Francisco.

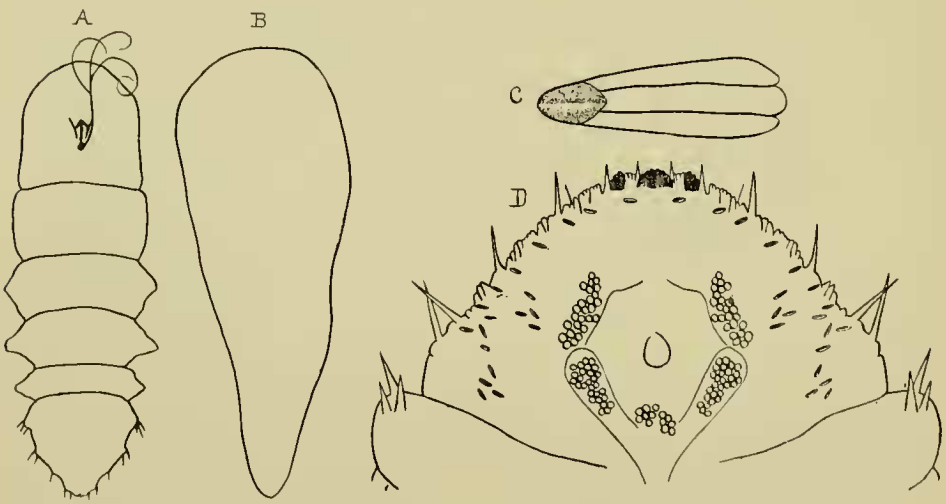

Figure 83. Hemichionaspis aspidistrae.

Hemichionaspis aspidistrae Sign

Female Scale (Fig. 83, B)—Long and narrow, differing greatly in shape. Some are oyster-shaped while others are straight with all the possible graduations between these two. In general, however, the body-end is nearly pointed and the scale gradually widens to the posterior end which is the widest and rounded. Length 2 to 2.5 mm., width about one-third the length. Color—Straw to a deep brown, and in extreme cases almost purplish-black. Exuvia about as long as the width of the body at its widest place, with a distinct ridge running down the dorsum.

Female Body (Fig. 83, A)—Nearly as long as the shell and deeply segmented. Color—yellow to brown.

Pygidium (Fig. 83, D)—None of the lobes very prominent. Median divided in the middle, but fitting together to form one well rounded mesal lobe. Second pair serrate and more or less divided into several as are all of the lobes. There are rudiments of a third, fourth and even fifth pairs of lobes all serrate and apparently divided into three lobes. The three teeth or lobes are pronounced on the mesal and second pair. The spines are unusually long and stout. They are distributed as follows: One between the mesal and second pair, this one small; one between the second and third pair, larger than the first; one between the third and fourth, and one between the fourth and fifth, both of these are very large. There are two more very large spines before the last segment of the abdomen is reached, and on this segment are three such spines. The tubular spinnerets are numerous and thickest between the anal opening and the lateral margins of the pygidium. The circumgenital glands are arranged in groups as follows; lower laterals—23 to 26, upper laterals—28 to 30, median—10 to 13.

Male Scale—Resembles the male of the genus Chionaspis. Color—white, with the exuviæ yellowish-brown. There are three distinct lobes to the male case as shown in the cut (Fig. 83 C). The length is from one-third to one-half that of the female. Adult form was not obtained by the writer.

Food plants—*Aspidistra lurida*, Orchids, Ferns, Orange, Mango, Fig, Pepper tree, *Acacia melanoxylon, Davallia moorei, Cocos plumosa, Cyanotus, Areca catechu, Platycerium*, etc.

Habitat—The writer's specimens were taken from Platycerium and Boston Fern in a Pomona greenhouse. It has been reported in quarantine at San Francisco and from the following other places: France, England, India, Formosa, Japan, Ceylon, Australia, Brazil, Trinidad, Canada (greenhouse), Massachusetts, Washington, D. C.

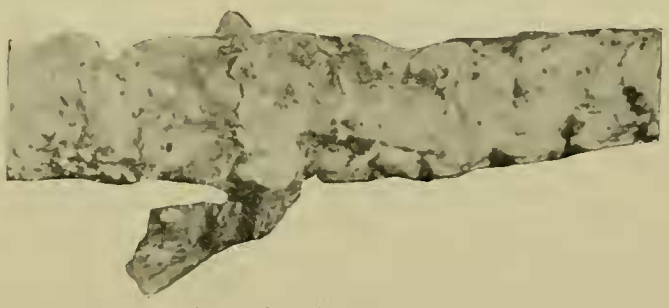

Figure 84. Aulacaspis rosae.

Aulacaspis rosæ (Bouche) Rose Scale

Female Scale (Fig. 84)—Nearly oblong to round, with irregular margin. Diameter 2 mm. Color—nearly white or gray, with exuviæ yellow or brown. Texture very thin and fragile.

Female Body (Fig. 85 B)—Brown, turning red when boiled in KOH, larger at the anterior end and tapering towards the posterior, more or less triangular. Body segmented near the pygidium as shown in the cut. A large dark spot marks the location of the mouth parts.

Pygidium (Fig. 85 A)—Lobes not very well developed. Mesal serrate and approximate at base, but diverging. The second pair is distinct with inner lobe largest. Of the smaller third pair the same is also true. The fourth pair is not at all distinct and the fifth pair entirely wanting. All of the lobes are markedly serrate. The spines are prominent and distributed as follows; short one between the mesal and second, but this is longer than the lobes; one between the second and third; one between the third and fourth and two more on the margin of the pygidium towards the anterior end. These spines are all large. On the abdominal lateral margins are from two to three stout spines. The tubular spinnerets are few in number—six to seven on each side of the anal opening. The circumgenital glands or spinnerets are arranged in the following groups: upper laterals—19, lower laterals—24, median—15.

Male Scale—Resembling that of the *Hemichionaspis aspidistrae* already figured. It is white, tri-lobed, and about half as long as the female scale. Adult form not obtained.

Figure 85. Aulacaspis rosae.

Food plants—Infesting the canes of the Rose, Blackberry, Raspberry, Loganberry; also the Grape, Strawberry, Myrtle, Pear, Ailanthus, Cycas, Mango, etc.

Habitat—Common in many parts of this state and particularly harmful to berries in Ventura County. It has also been reported from Europe, Japan, Australia, New Zealand, Hawaiian Islands, Demerara, China, Fiji, Chili, West Indies, Mexico, Canada, New York, Florida, Ohio.

Treatment—The Blackberry, Raspberry and Loganberry of this county are often greatly damaged by this scale. Working on the canes near the base or even to the crown of the roots as it does, it takes some care in applying remedial measures. Kerosene Emulsion or Distillate sprays are effectual, but I have found the Crude Carbolic Emulsion more effective upon this insect. Remove the soil to the crown of the roots and apply the spray in the winter when the canes are bare and dormant. Cover with soil after the application so as to keep roots protected. Apply again as often as the scale appears, being careful each time to spray down as far as the scale go on the canes.

Diaspis bromeliae Kern. Pineapple Scale

Female Scale—Nearly circular, flat, with more or less uneven margin; diameter, 2 mm.; color nearly white, with first exuvia yellow.

Female Body (Fig. 86 B)—The general shape is that of most of the members of this genus—it being oval at the anterior end and tapering towards the posterior end—nearly triangular. The color is a light yellow to almost brown, with a faint tinge of blue or purple in some. Diameter of the body—taking the longest measurements possible—rarely exceeds 1 mm.

Pygidium (Fig. 86 A)—Mesal lobes separated by two distinct spines; depressed on the inner margins. Secondary lobes divided or forked and depressed on the outer margins. Third pair of lobes and fourth pair like the second—bifurcate and depressed or serrate on the outer margin. Spines are stout and prominent; arranged as follows: two between the mesal lobes, one between the mesal and second pair, one between second and third pair, one between third and fourth pair—also a slender spine or hair. Seven very stout spines between the fourth pair and the last abdominal segment preceding the pygidium, two on this last segment. Tubular spinnerets numerous and distributed over nearly the whole surface of the pygidium.

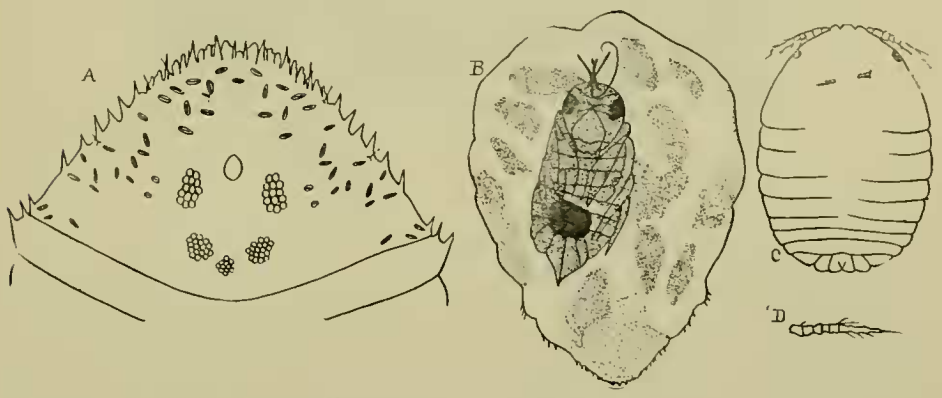

Figure 86. Diaspis bromeliae.

Distribution of the circumgenital glands is as follows: Lower laterals—12 to 15; upper laterals—17 to 19; median—10 to 13.

The female body shown in the cut is parasitized—the nearly full grown parasite showing plainly.

Young (Fig. 86 B)—Oval or nearly round, flat, slightly segmented towards the posterior end. Antennæ six—articled and normally haired. Legs very small—not showing when viewed dorsally. Anal lobes without spines.

Food plants—Pineapple, *Bromelia, Pinguin, Hibiscus, Canna, Ivy, Billbergia zebrina, Olea fragrans.*

The described specimen was taken from a pineapple in a Pomona greenhouse, where it was quite thick. It has been reported from Europe, greenhouses in all parts of the United States, Hawaiian Islands, and Mexico

Strangely it has never been reported from Florida—the home of a great pineapple industry.

Diaspis echinocacti cacti Comst

Female Scale (Fig. 87)—Light gray in color with a dark apex—this apex or first exuvia is usually near one edge of the shell. The diameter is from 1½ to 2 mm.

Body (Fig. 88B)—The younger form (Fig. 88 A) is nearly round, without signs of segmentation. The adult form (Fig. 88 B) is more or less heart-shaped and much segmented near the posterior end.

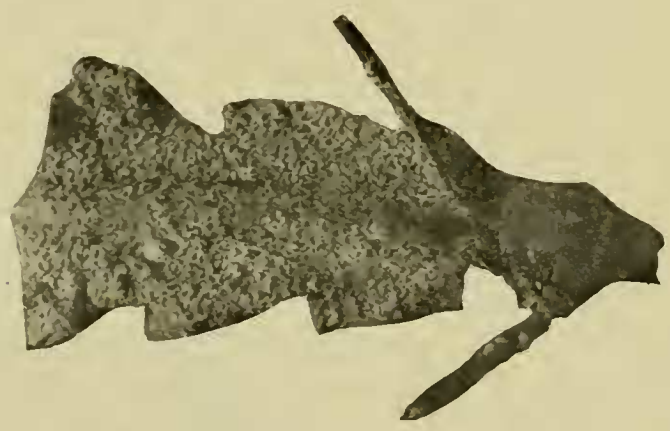

Figure 87. Diaspis echinocacti var. cacti.

Pygidium (Fig. 88 C)—Median lobes are smooth and single. Second pair lobes are smooth and double. Third lobe is a single smooth lobe. Fourth lobe is double and smooth. There is also a rudimentary fifth lobe. Between the two median and also between the median and the second pair lobes are two fumbriated plates. Between the second and third lobes is a single stout spine; one spine between the third and fourth; and two between the fourth and fifth. There are four more spines before the first segment. Spinnerets are very numerous all over the surface of the pygidium. Median groups consist of 14 to 16, laterals nearly the same number. The tubular spinnerets are widely distributed.

Male—Resembles the male pupacases of all the genus Diaspis. They consist of a small dark body, and a long white sac with three parallel lobes running the entire length of the sac. The adult form was not obtained.

Food plants—*Cereus giganteus, C. macrogonus, Echinocactus.*

Habitat—This specimen was taken at Guadalajara, Mexico, by D. Crawford. It has been reported from greenhouses in northern United States, New Mexico, Brazil, India, Mauritius.

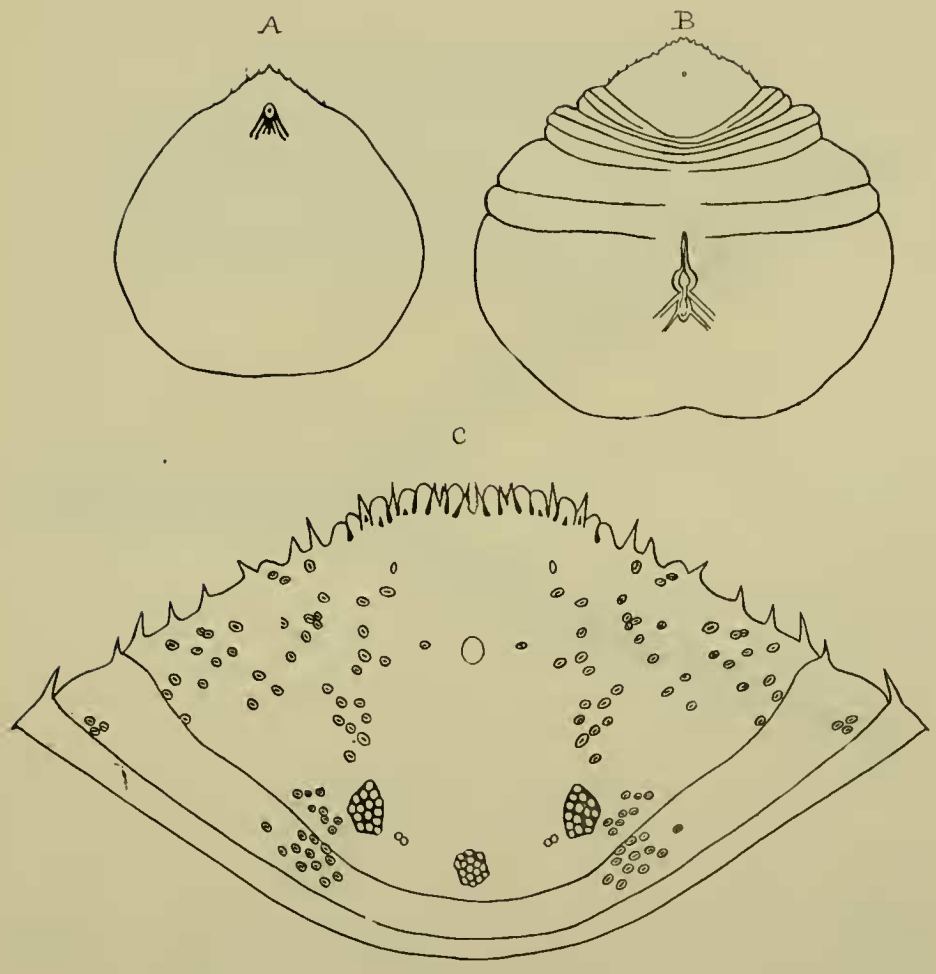

Figure 88. Diaspis echinocacti var. cacti

Saissetia hemisphaerica (Targ)

Hemispherical Scale

This scale (Fig. 89) is very widely distributed, especially in the regions along the coast. In this county (Ventura) it is very numerous along the entire sea-border, feeding on a great variety of plants. The photo shows a normal condition of a Bignonia infested with this scale, growing on the grounds of the County Court House.

It is a special greenhouse nuisance, working on nearly all the ferns, palms, etc., and has been distributed on such stock.

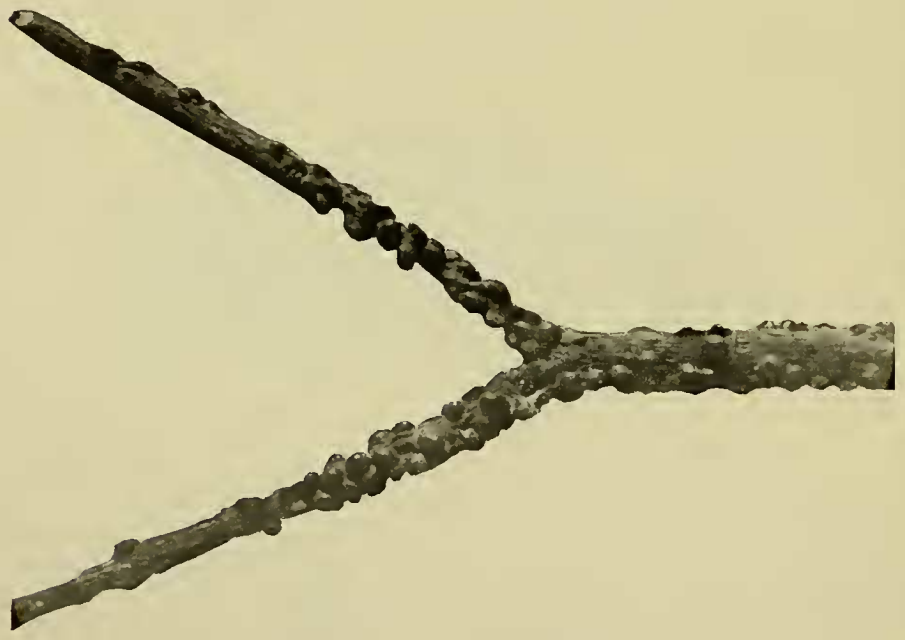

Figure 89. Saissetia hemisphaerica.

The citrus trees do not escape its attacks, but no serious damage has been done to them. The scales usually settle around the edges of the leaves and are easily recognized by their smooth, hemispherical, brown bodies. At some periods of the year it infests these trees almost as badly as the Black Scale, but is not as persistent. This is especially true in the localities of Ventura and Oxnard. In the interior it is seldom found on the citrus trees at all, and few orchardists know of its existence.

In the greenhouses it is usually handled with sprays such as Kerosene Emulsions, etc. Fumigation will get it in the orchard.

The parasite of the Black Scale, *Scutellista cyanea,* works on this scale also with about the same efficiency.

Pseudococcus nipæ (Mask)

The Host Index to California Coccidæ, by Prof. C. F. Baker and the author, shows it to feed on the following California plants: Maiden-Hair Fern, *Aralia sieboldi*, Betel Nut, Ghost Plant, Boxwood, *Camellia*, Orange, Pomelo, Citron, Lemon, Cocoanut Palm, Ferns, Geranium, Oleander, Boston Fern, Peach, Pepper Tree, Nightshade.

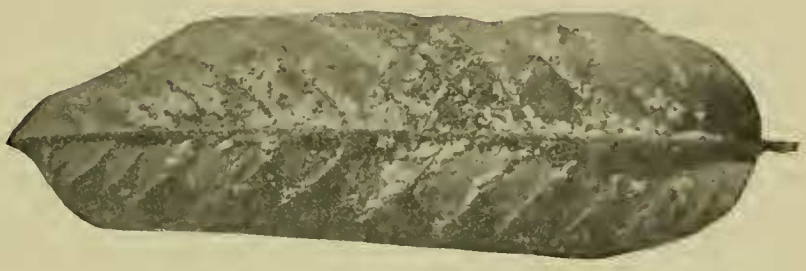

Figure 90. Pseudococcus nipae.

Habitat—Found in practically all parts of the world.

Female (Fig. 90)—The covering of the dark body is a creamy white, and in texture greatly resembles that of *Ceroputo yuccae* (Coq.), especially the

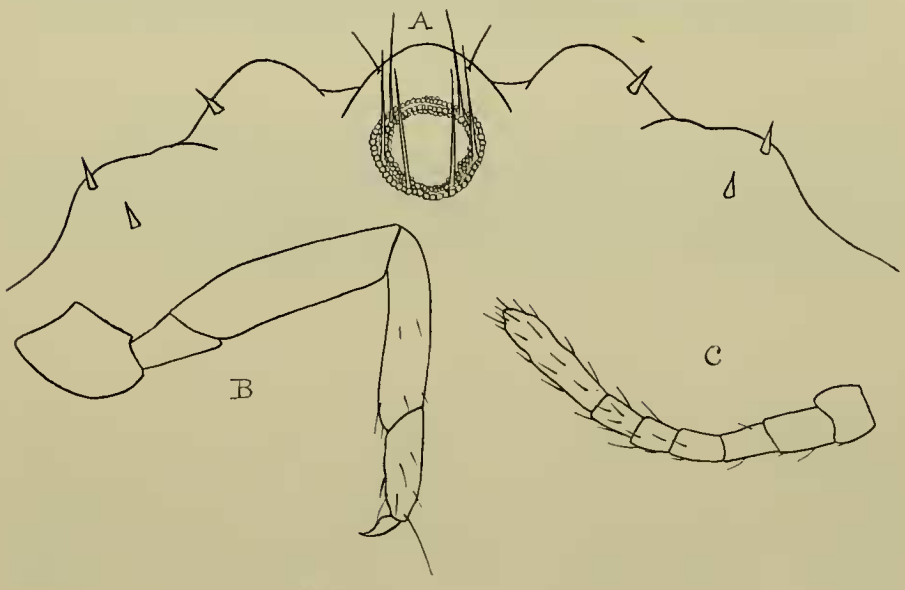

Figure 91. Pseudococcus nipae.

young forms. The forms obtained seem to be the winter broods according to the peculiarity of the antennæ which are 7-articled on all of the specimens obtained. This may also be due to the fact that no fully matured adults were taken. Whatever the case may be, I am only able to present the material as it came to me.

Antennae (Winter form) (Fig. 91 C)—7-articled; the comparative lengths of the respective articles, beginning with the longest, are as follows: 7, 2, (3, 4), 6, (1, 5). All of the articles are normally hairy.

Legs (Fig. 91 B)—Coxa and tarsus coequal, femur a little longer than the tibia. Tibia nearly twice as long as the tarsus. Only a few hairs on the tibia and tarsus.

Pygidium (Fig. 91 A)—Furnished with six circumanal spines, but no spines in evidence on any of the anal lobes. There are two small hairs on the median lobes. On the first lobe is one stout spine and two such spines on the second lobe.

Male—The adult form has not been obtained. The pupa cases are about 1 mm. in length, cylindrical, and snow white. They are seen in great numbers on the guava leaf in the photograph (Fig. 90).

Food plants—Crawford found this very abundant on the Guava. It has been reported on *Nipa fruticans,* and palms.

Habitat—Collected by David Crawford on Guava in the neighborhood of Guadalajara, Mexico. It was also taken by others from Demerara, Mexico.

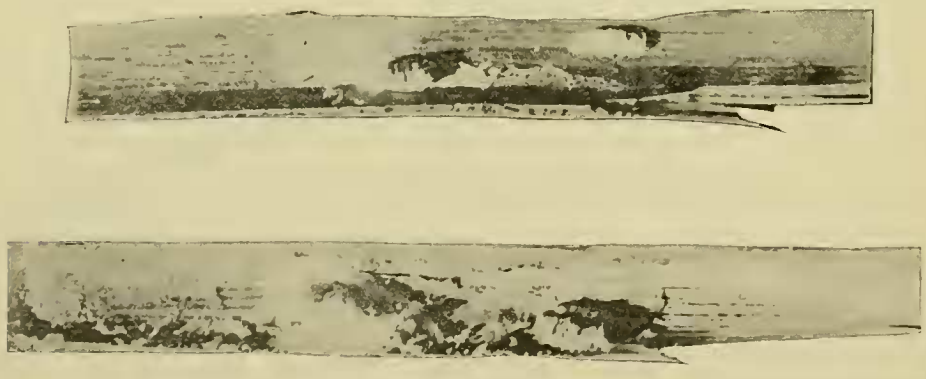

Figure 92. Ripersia smithii.

Ripersia smithii n. sp.

Adult Female (Fig. 92)—Body decidedly long and narrow or elongate-elliptical in form. Length 4 to 6 mm.; width 1.5 to 2 mm. Color, pinkish to slate. The waxy covering is very fine and scarcely hides the color of the body. The waxy appendages are rudimentary and imperfect and the segmentation indistinct. When boiled in KOH the body first becomes pink and later perfectly colorless and transparent.

The antennae (Fig. 93 A) are 7-articled and normally placed on the head. They are very distinctly seen with the unaided eye in some specimens. Many specimens were examined with three normal ones drawn and showing the following formulæ:

One specimen—7, (1, 2, 4), 6, 5, 3.
One specimen—7, 1, (2, 4), 6, 5, 3.
One specimen—7, (1, 2), 6, 4, 5, 3.

The antennæ on the same specimen usually agree, but these often differ to a marked degree.

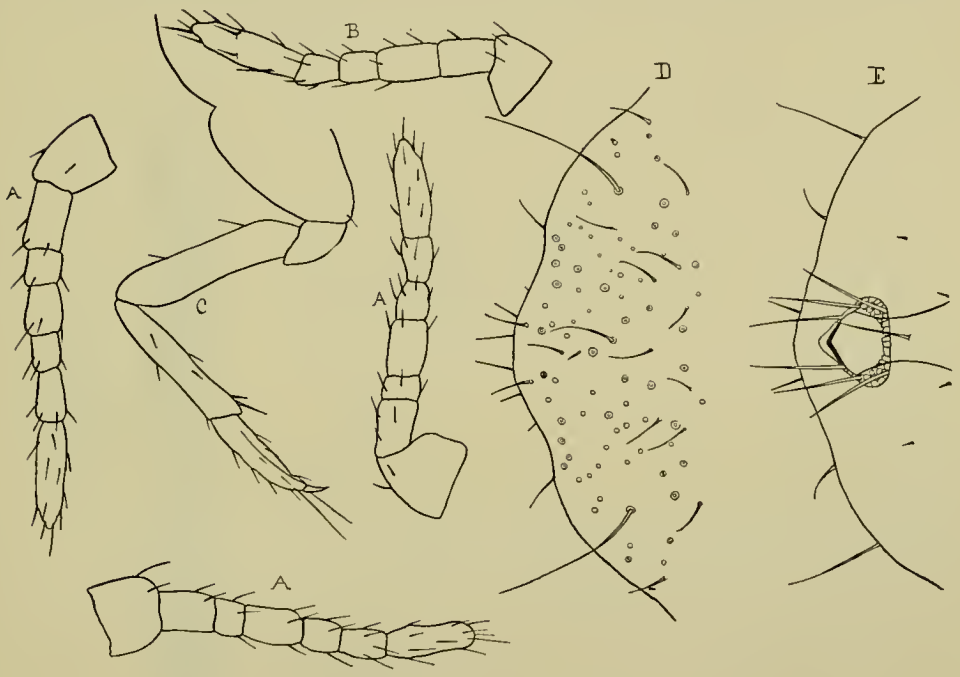

Figure 93. Ripersia smithii.

Legs (Fig. 93 C)—Normal, with few hairs. Coxa large and as long as the tibia. Femur longer than tibia. Tibia one-third times the length of the tarsus. Claw normally curved.

Pygidium (Fig. 93, D and E)—Normal with six anal spines. In one specimen there was a spine just before the anal opening (Fig. 93 E). This is not usually present. Lobes not prominent—with no spines in adult form—a few short hairs. In the young there are two short stout spines and several hairs forming a sort of tuft. The ventral surface has very few hairs or spines. The dorsal surface has many hairs and two long lateral hairs or spines, these appear on the lobes of the younger forms.

There is a great difference in the pygidium of the respective ages, but all adults examined were egg-laying and the largest obtainable.

Eggs—Elliptical, very small, yellow in color. Laid in a white, cottony or waxy secretion—usually in masses beneath the female body, but at times in large irregular masses filling the entire culm of the infested grass. This shows in the photo (Fig.).

Young—Of the same general shape as the adult. Color almost white—sometimes dark pink. Antennæ (Fig. 93 B) sometimes 6-articled, with first three articles co-equal. Normally haired. Pygidium with two spines on lobes, 6-circumanal and two stout spines on lobes forming tufts.

Habitat—Found in many sections of this county (Ventura) feeding upon the Wild Rye, *Elymus condensatus*. It may be found between the blades and

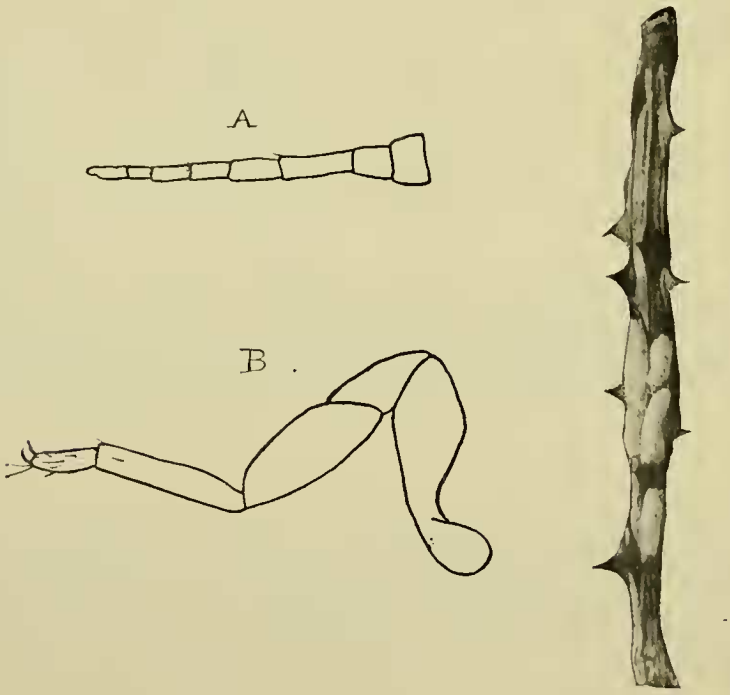

Figure 94. Lichtensia parvula.

the culm or within the culm if there is a place for entering—such an entrance is sometimes afforded by holes bored through the culm by the larva of a moth. Within the culm the eggs are often massed in great quantities and the young crawl out upon hatching.

The tips of the culms are usually more liable to be infested than any other part of the plant, where the last blades form an axil.

Due to its habits of life, the bodies are very flat to admit them between the close fitting blades and the culm. Here the eggs are usually laid in oblong masses, beneath the female.

The first specimens were taken in July, 1909, when they appeared to be quite plentiful. Last month (March, 1910) they were still to be found, but only in limited numbers—however, all stages were present. A search made on other plants and on the roots of the Wild Rye revealed none.

A small lady bird beetle was found feeding upon it in considerable numbers at first, but later search revealed none of these for identification.

It seemed at first likely that this species was *Ripersia festucae* Kuw., but there are plenty of characters different enough to make it a new species. It is named in honor of Mr. P. E. Smith, who was probably the first to discover it and to whom I am much indebted for this and other good things.

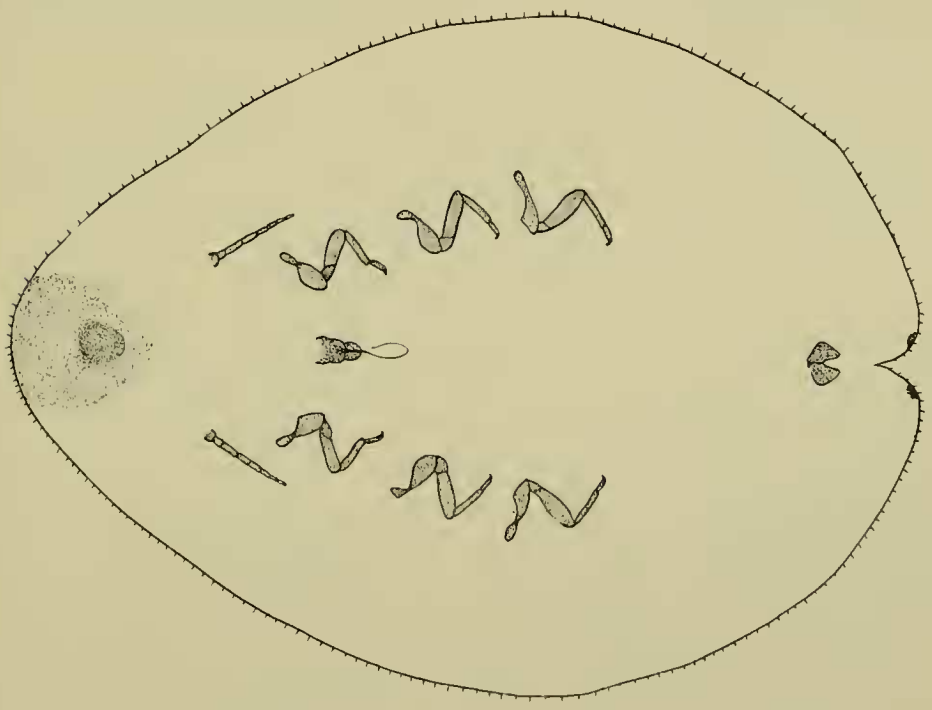

Figure 95. Lichtensia parvula.

Lichtensia parvula (Ckll)

Adult Female (Fig. 94 C)—This scale resembles greatly the genus *Pulvinaria,* as the photograph shows. The general color is the same, the body being dark and the long cottony egg-sac, white. The length of the entire Scale varies from 10 mm. to 14 mm.

Body Proper (Fig. 95)—About one-third the length of the scale. The color is dark brown. Shape—oblong to oval. A row of short spines extends entirely around the lateral margins of the insect.

When boiled in KOH the body becomes transparent except the anterior end, the anal opening, and the appendages. The general texture of the body appears fibrous and large muscles are attached to the legs.

Antennae (Fig. 94 A)—Remain brown, have very few hairs, and are 8-articled.

Legs (Fig. 94 B)—Also remain brown and are nearly glabrous. Coxæ are very large and are nearly as long as the femur. The femur and tibia are co-equal, and twice as long as the tarsus.

Anal Opening—Is the same as that of the genus Lecanium, consisting of two somewhat triangular lobes on either side of the aperture proper.

Food plants—Reported by Crawford on Mesquit (*Proposis juliflora*), on *Mimosa* by Cockerell.

This form was collected, by David Crawford, from the hills around the city of Gaudalajara, Mexico, last summer and is one of the many interesting forms sent by him.